

**AMENDMENTS TO THE CLAIMS:**

Please amend claims 1 and 2, as follows. This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (Currently amended): A thermoelectric element comprising:

a thin film of p-type thermoelectric material,

a thin film of n-type thermoelectric material, and

the thin film of p-type thermoelectric material and the thin film of n-type thermoelectric material being formed on the electrically insulating substrate and being electrically connected,

(i) the p-type thermoelectric material comprising at least one complex oxide selected from the group consisting of:

complex oxides represented by Formula (2):  $\text{Bi}_f\text{Pb}_g\text{M}^1_h\text{Co}_i\text{M}^2_j\text{O}_k$ , wherein  $\text{M}^1$  is one or more elements selected from the group consisting of Na, K, Li, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, Pb, Ca, Sr, Ba, Al, Y, and lanthanoids;  $\text{M}^2$  is one or more elements selected from the group consisting of Ti, V, Cr, Mn, Fe, Ni, Cu, Ag, Mo, W, Nb, and Ta;  $1.8 \leq f \leq 2.2$ ;  $0 \leq g \leq 0.4$ ;  $1.8 \leq h \leq 2.2$ ;  $1.6 \leq i \leq 2.2$ ;  $0 \leq j \leq 0.5$ ; and  $8 \leq k \leq 10$ ; and

(ii) the n-type thermoelectric material comprising at least one complex oxide selected from the group consisting of:

~~complex oxides represented by Formula (3):  $\text{Ln}_m\text{R}^1_n\text{Ni}_p\text{R}^2_q\text{O}_r$ , wherein Ln is one or more elements selected from the group consisting of lanthanoids;  $\text{R}^1$  is one or more elements selected from the group consisting of Na, K, Sr, Ca, and Bi;  $\text{R}^2$  is one or more elements selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Cu, Mo, W, Nb, and Ta;  $0.5 \leq m \leq 1.7$ ;  $0 \leq n \leq 0.5$ ;  $0.5 \leq p \leq 1.2$ ;  $0 \leq q \leq 0.5$ ; and  $2.7 \leq r \leq 3.3$ ;~~

complex oxides represented by the Formula  $\text{Ln}_x\text{R}^5_y\text{Ni}_p\text{R}^6_q\text{O}_r$ , wherein Ln is lanthanoid;  $\text{R}^5$  is one or more elements selected from the group consisting of Na, K, Sr, Ca, and Bi, and Nd;  $\text{R}^6$  is one or more elements selected from the group consisting of Ti, V, Cr, and Cu;  $0.5 \leq x \leq 1.2$ ;  $0 \leq y \leq 0.5$ ;  $0.5 \leq p \leq 1.2$ ;  $0.01 \leq q' \leq 0.5$ ; and  $2.8 \leq r' \leq 3.2$ ;

complex oxides represented by Formula (5):  $\text{A}_x\text{Zn}_y\text{O}_z$ , wherein A is Ga or Al;  $0 \leq x \leq 0.1$ ;  $0.9 \leq y \leq 1$ ; and  $0.9 \leq z \leq 1.1$ ; and

complex oxides represented by Formula (6):  $\text{Sn}_{xx}\text{In}_{yy}\text{O}_{zz}$ , wherein  $0 \leq xx \leq 1$ ;  $0 \leq yy \leq 2$ ; and  $1.9 \leq zz \leq 3$ .

Claim 2 (Currently amended): The thermoelectric element according to Claim 1, wherein the p-type thermoelectric material comprises at least one complex oxide selected from the group consisting of complex oxides represented by the formula:  $\text{Bi}_f\text{Pb}_g\text{M}^1_h\text{Co}_2\text{O}_k$ , wherein  $\text{M}^1$  is one or more elements selected from the group consisting of Sr, Ca and Ba;  $1.8 \leq f \leq 2.2$ ;  $0 \leq g \leq 0.4$ ;  $1.8 \leq h \leq 2.2$ ; and  $8 \leq k \leq 10$ ;

the n-type thermoelectric material comprises at least one complex oxide selected from the group consisting of ~~complex oxides represented by the formula:  $\text{Ln}_m\text{R}^t_n\text{NiO}_r$ , wherein Ln is lanthanoid;  $\text{R}^t$  is one or more elements selected from the group consisting of Na, K, Sr, Ca, and Bi;  $0.5 \leq m \leq 1.2$ ;  $0 \leq n \leq 0.5$ ; and  $2.7 \leq r \leq 3.3$ , and complex oxides represented by the formula:  $\text{Ln}_x\text{R}^5_y\text{Ni}_p\text{R}^6_q\text{O}_r$ , wherein Ln is lanthanoid;  $\text{R}^5$  is one or more elements selected from the group consisting of Na, K, Sr, Ca, Bi, and Nd; and  $\text{R}^6$  is one or more elements selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, and Cu;  $0.5 \leq x \leq 1.2$ ;  $0 \leq y \leq 0.5$ ;  $0.5 \leq p \leq 1.2$ ;  $0.01 \leq q' \leq 0.5$ ; and  $2.8 \leq r' \leq 3.2$ .~~

Claim 3 (Original): The thermoelectric element according to Claim 1, wherein the thin film of p-type thermoelectric material and the thin film of n-type thermoelectric material are electrically connected by one of the following methods:

bringing one end portion of the thin film of p-type thermoelectric material into direct contact with one end portion of the thin film of n-type thermoelectric material;

bringing one end portion of the thin film of p-type thermoelectric material into contact with one end portion of the thin film of n-type thermoelectric material via an electrically conductive material;

U.S. Patent Application Serial No. 10/593,644  
Response filed October 24, 2008  
Reply to OA dated July 24, 2008

bringing one end portion of the thin film of p-type thermoelectric material into direct contact with one end portion of the thin film of n-type thermoelectric material and covering the contact portion with an electrically conductive material.

Claim 4 (Original): The thermoelectric element according to Claim 1, wherein the thin film of p-type thermoelectric material and the thin film of n-type thermoelectric material are formed on the same surface or on different surfaces of the electrically insulating substrate.

Claim 5 (Original): The thermoelectric element according to Claim 1, wherein the electrically insulating substrate is a substrate comprising a plastic material.

Claim 6 (Original): The thermoelectric element according to Claim 1, wherein thermoelectromotive force is at least  $60 \mu\text{V/K}$  in a temperature range of 293 K to 1073K.

Claim 7 (Original): The thermoelectric element according to Claim 1, wherein electrical resistance is  $1 \text{ K}\Omega$  or lower in a temperature range of 293 K to 1073 K.

Claim 8 (Original): A thermoelectric module comprising a plurality of the thermoelectric elements of Claim 1, wherein the thermoelectric elements are electrically connected in series such that an unconnected end portion of a p-type thermoelectric material of one thermoelectric element

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is electrically connected to an unconnected end portion of an n-type thermoelectric material of another thermoelectric element.

Claim 9 (Original): A thermoelectric conversion method comprising positioning one end of the thermoelectric module of Claim 8 at a high-temperature portion and positioning the other end of the module at a low-temperature portion.